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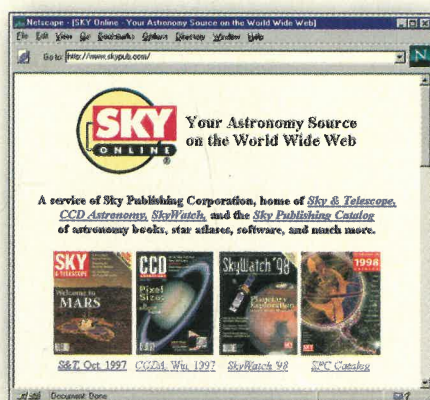
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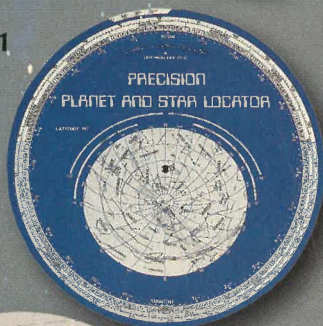
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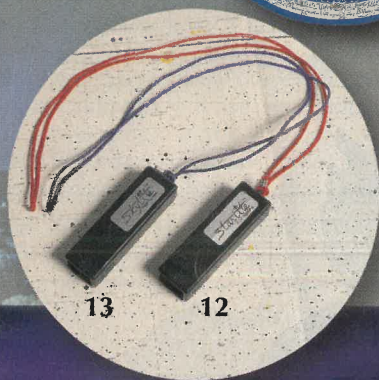


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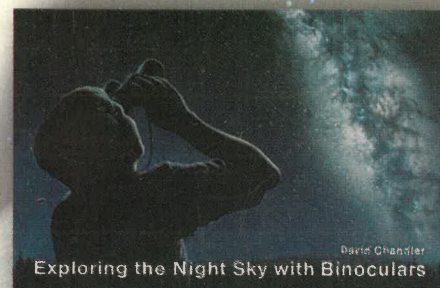
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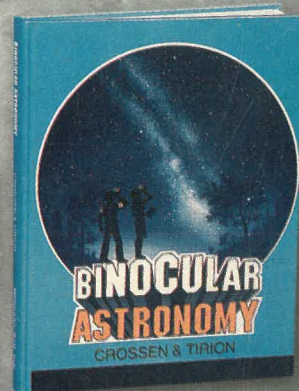
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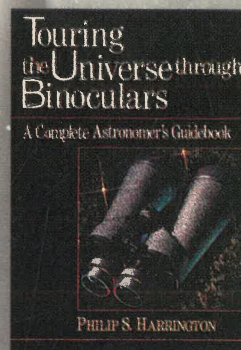
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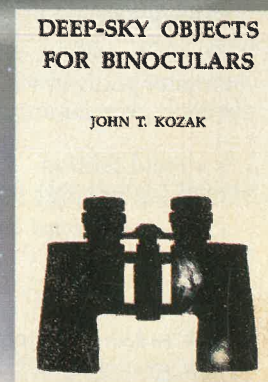
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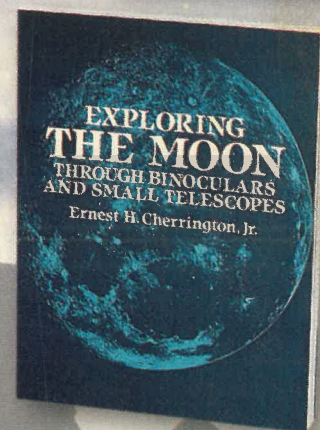
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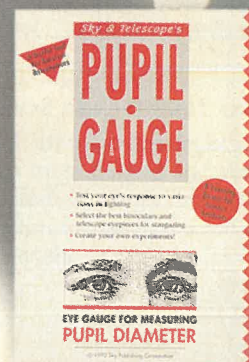
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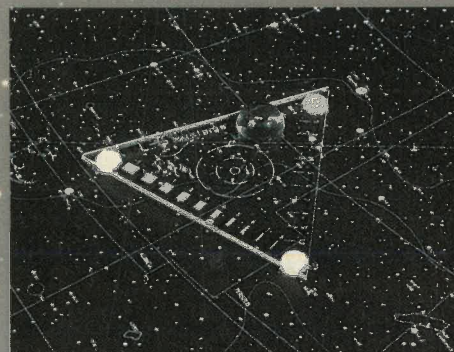
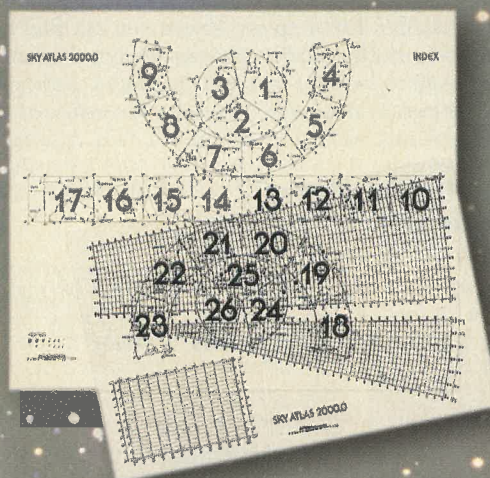
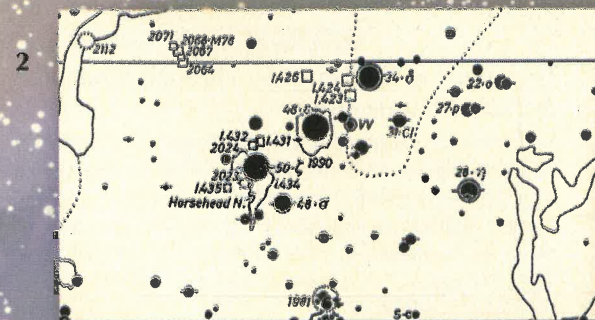
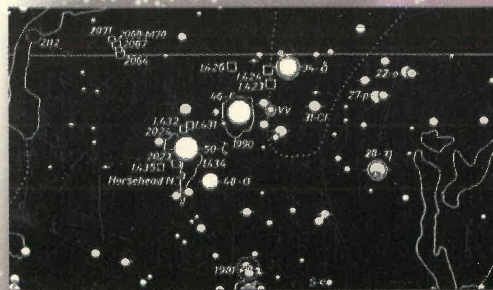
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## 10 • Sky Catalogue 2000.0 Diskettes (DOS, Mac)

Here are machine-readable versions of the two *Sky Catalogue 2000.0* volumes. Each comes with a demo program (written in BASIC) that allows you to extract all the catalogued objects within a specified window of sky. If you know BASIC, you can easily write your own applications.

Requirements: DOS: IBM compatible, DOS 3.3 or higher; Mac: 1 MB RAM, System 4.1 or higher, Finder 5.5 or higher. Note: The supplied BASIC program will not run on many Macintosh computers equipped with PowerPC processors. On such machines, you can examine the BASIC program in any word processor.

Volume 1, 2nd Edition Diskette:

S0027 DOS 3 1/2" . . . \$19.95 • S0073 Mac . . . \$19.95

**New!** Volume 2 Diskette: S2001 DOS 3 1/2" . . . \$19.95 • S2002 Mac . . . \$19.95

## 11 • Sky Atlas 2000.0 Companion

By Robert A. Strong

Overwhelmed by the breadth and depth of *Sky Catalogue 2000.0*? Here's some lighter fare: an alphabetical listing of every deep-sky object (but none of the stars) plotted on *Sky Atlas 2000.0*. Included are object type, coordinates, size, and brightness. Another set of tables gives a chart-by-chart listing of "faint fuzzies." 221 pages, 8 1/2 by 11 inches, spiralbound.

39301 . . . \$24.95



# 1 • Bright Star Atlas 2000.0

By Wil Tirion

This affordable starter atlas has 10 black-and-white maps covering the entire sky. It features 9,096 stars to magnitude 6.5, a list of the brightest deep-sky wonders (600 in all) facing each map, and 6 seasonal constellation finder charts. 32 pages, 9 by 12 inches, softcover.

96271 . . . \$10.95

# 2 • The Cambridge Star Atlas, 2nd Edition

by Wil Tirion

This easy-to-use reference from the world's best-known celestial cartographer is an indispensable guide to the entire sky for beginning and intermediate skygazers. Pairs of monthly all-sky maps orient both Northern and Southern Hemisphere observers to the stars and constellations visible in the evening at different times of year. Next comes an atlas of the entire sky to magnitude 6.5 on 20 charts; stars are black, and deep-sky objects are color-coded for easy identification. Facing each chart is a list of its most interesting double stars, variables, star clusters, nebulae, and galaxies. There's a Moon map, too! 90 pages, 9¼ by 12¼ inches, hardcover.

60985 . . . \$19.95

# 3 • Monthly Star Charts

By George Lovi and Graham Blow

For 25 years George Lovi's all-sky charts graced the center of *Sky & Telescope*. Now we offer the complete set — 12 Northern Hemisphere and 12 Southern Hemisphere charts — in one convenient volume. These maps depict the constellations with stars to magnitude 4.5, labeled with Greek letters and/or their common names. Northern maps show horizons every 10° from +20° to +50° latitude; southern maps range from -10° to -40°. Opposite each chart are an essay and tables and photos of key deep-sky objects. With white stars on a dark blue background, these charts are especially easy to read by red light. 56 pages, 11 by 13½ inches, spiralbound.

46697 . . . \$24.95

# 4 • The Photographic Atlas of the Stars New!

By H. J. P. Arnold, Paul Doherty, and Patrick Moore

This beautiful atlas presents 45 glorious wide-field astrophotos taken from both the Northern and Southern Hemispheres. Each faces a detailed map (made from a negative of the same photo) labeling well-known stars and deep-sky objects. You won't find an atlas that does a better job than this one at showing how the sky really looks to the unaided eye or in binoculars! 224 pages, 11½ by 8¼ inches, hardcover.

35313 . . . \$59.95

# 5 • Atlas of Deep-Sky Splendors, 4th Edition

By Hans Vehrenberg

This cherished volume helps the amateur astronomer pinpoint faint objects in the night sky. It features 113 wide-field photographs, 2½° square, of some 400 galaxies, nebulae, and star clusters in their surrounding star fields. Most are at the same scale (1° = 60 millimeters) to show the objects' relative sizes, structures, and locations. Descriptive text provides a bounty of historical and astronomical information. 242 pages, 9½ by 12¾ inches, hardcover.

46034 . . . \$24.95

# 6 • AAVSO Variable Star Atlas, 2nd Edition

By Charles Scovil

The 178 charts in this approximately 9th-magnitude atlas plot all variables with a brightness range of more than 0.5 magnitude and a maximum brighter than 9.5. Many comparison-star magnitudes are given. Includes an index of variable stars by constellation. 205 pages, 8½ by 11 inches, loose-leaf binder.

4628X . . . \$44.95

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**7 • Uranometria 2000.0**

By Wil Tirion, Barry Rappaport, and George Lovi

This advanced-level atlas for the experienced telescope user displays 332,000 stars to as faint as magnitude 9.5, plus 10,300 deep-sky objects. Each map has a labeled coordinate grid with lines for every degree of declination and similar intervals of right ascension. The scale is a generous 1.4° per inch. *Each volume contains 259 charts, 9 by 12 inches, hardcover.*

9614X Vol. 1: Northern Hemisphere to -6° . . . \$39.95

96158 Vol. 2: Southern Hemisphere to +6° . . . \$39.95

**8 • The Deep-Sky Field Guide to Uranometria 2000.0**

By Murray Cragin, James Lucyk, and Barry Rappaport

This book gives essential data for the 10,300 deep-sky objects plotted in the two volumes of *Uranometria 2000.0*. Its 473 tables, each matching one *Uranometria* chart, list the coordinates, dimensions, magnitudes, and other data for each plotted object, plus notes. Indexed for easy reference. *408 pages, 9 by 12 inches, hardcover.*

96387 . . . \$49.95

**9 • Uranometria 2000.0 Data Scale**

This handy gadget for use with *Uranometria 2000.0* lets you quickly determine the magnitudes of plotted stars and measure angular distances and telescope fields down to ¼°. A "bull's-eye" shows the chart area visible in a Telrad 1× finder. *Clear plastic.*

S0088 . . . \$8.95

**10 • NGC 2000.0**

Edited by Roger W. Sinnott

This updated and expanded edition of the *New General Catalogue* gives coordinates and visual data for 13,226 nonstellar objects. *NGC 2000.0* preserves the best of the original book and its two Index Catalogues (IC), while providing modern (2000.0) positions, magnitudes, sizes, and object-type identifications. Organized by right ascension, with cross-indexing by NGC and IC numbers. *304 pages, 6 by 9 inches, softcover.*

46514 . . . \$14.95

**11 • NGC 2000.0 Diskette (DOS, Mac)**

A machine-readable version of the book, minus the constellations, descriptions, and indexes. Comes with a demo program (written in BASIC) that allows you to extract all the NGC and IC objects within a specified window of sky; if you know BASIC, you can easily write your own applications.

*Requirements:* PC: IBM compatible, DOS 3.3 or higher; Mac: at least 1 MB RAM, System 4.1 or higher, Finder 5.5 or higher.

S0023 DOS 3½" . . . \$14.95

S0042 Mac . . . \$14.95

**12 • Deep-Sky Planner, Version 2.0 (Windows) New!**

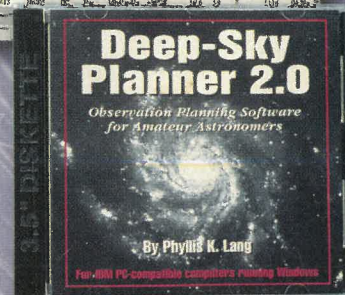
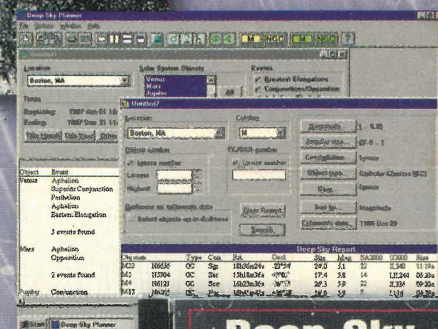
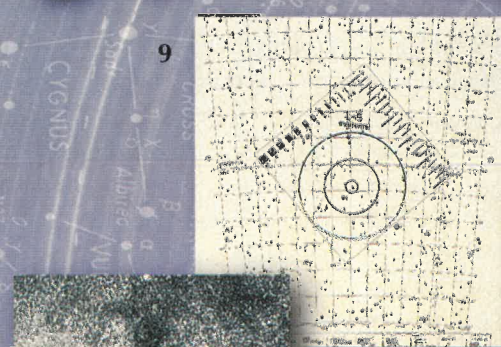
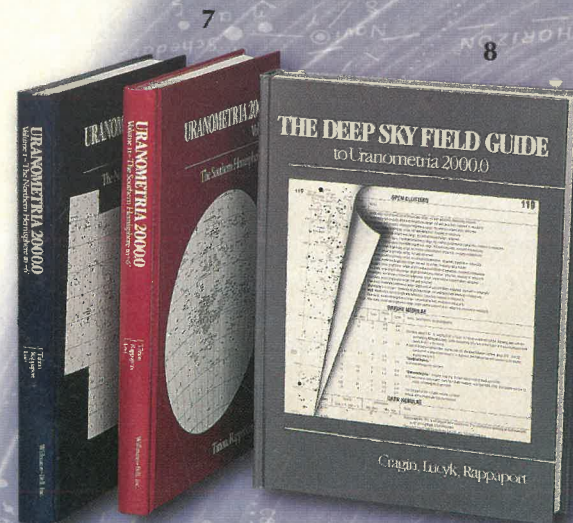
By Phyllis K. Lang

Make your next night of celestial sightseeing more efficient with this updated observation-planning program. With 10 astronomical catalogs in its database, *Deep-Sky Planner* creates customized reports of solar-system and nonstellar objects based on your selection criteria and viewing location. *DSP 2.0* offers essential data for any object you specify, cross-referenced to its chart number in *Sky Atlas 2000.0* and *Uranometria 2000.0*. Select objects by catalog, constellation, type, magnitude range, angular size, rise or set times, or combinations thereof. Or, choose a point in the sky and find out what deep-sky objects lie within a specified radius of it. Version 2.0 allows you to calculate ephemerides, including physical ephemerides, for the Sun, Moon, and all planets except Earth. You can also calculate times of eclipses, oppositions, greatest elongations, perihelions, lunar phases, and more.

*System requirements:* IBM PC-compatible computer running Windows 3.1/3.11/95 or OS/2 Warp 3.0 or higher; VGA or SVGA video; 4 MB RAM (8 MB recommended); 3.5 MB free hard-disk space. Math co-processor strongly recommended but not required. Learn more about Deep-Sky Planner on the World Wide Web at <http://www.skypub.com/catalog/dsp20/dsplan.html>

DSP20 . . . \$49.95

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# MILLENNIUM STAR ATLAS **New!**

By Roger W. Sinnott and Michael A. C. Perryman

In collaboration with the European Space Agency's Hipparcos Project, *Sky & Telescope* introduces the first all-sky atlas based on the new stellar positions, brightnesses, and distances from the Hipparcos and Tycho Catalogues. The *Millennium Star Atlas* is a large-format observing aid designed for active field use by professional astronomers and serious amateurs.

More than 1,058,000 stars to visual magnitude 11, three times as many as any other all-sky atlas in print:

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- 6,500 high-proper-motion stars
- Distances for 10,260 stars within 200 light-years of Earth

Complementing the Hipparcos data, *Sky & Telescope* has selected for inclusion a rich treasury of 10,000 nonstellar objects, many drawn to scale:

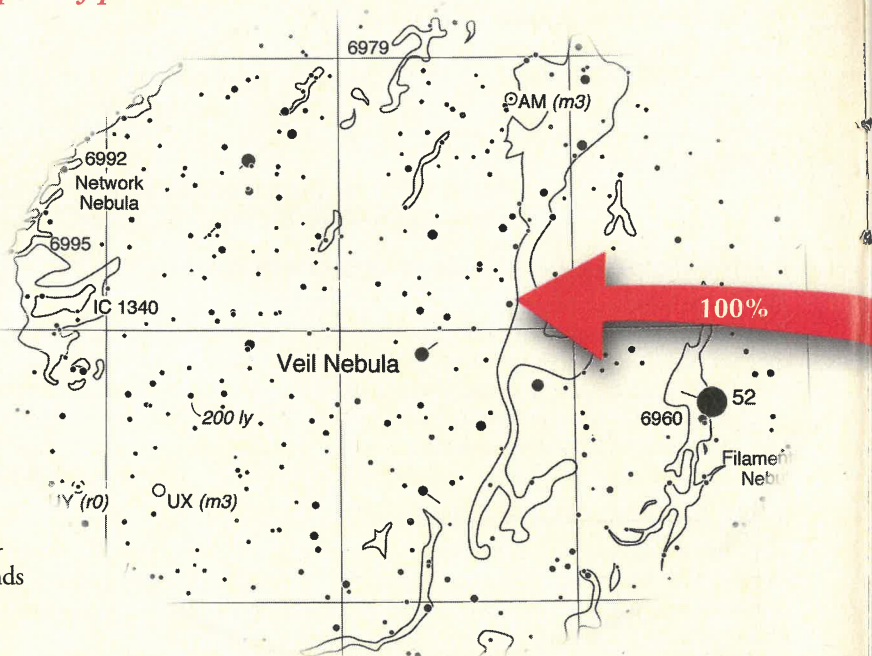
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- 860 open and globular star clusters
- 8,000 galaxies, with aspect ratios and orientations for all
- 930 galaxy clusters and quasars observable with backyard CCD equipment

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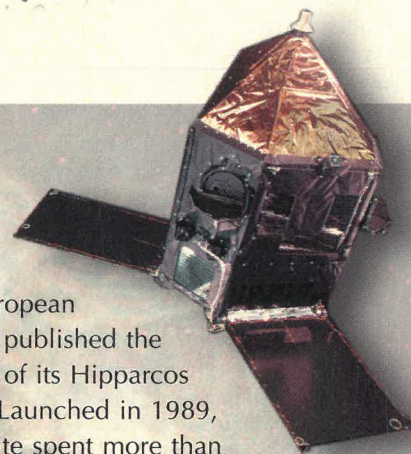
- Three gores of right ascension ( $0^h$ – $8^h$ ,  $8^h$ – $16^h$ ,  $16^h$ – $24^h$ ), each covering the sky from pole to pole
- Page size  $9\frac{1}{4}$  by 13 inches (235 by 330 millimeters)
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- Chart scale 100 arcseconds per millimeter
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To learn more, please visit the *Millennium Star Atlas* home page on SKY Online at <http://www.skypub.com/msa/msa.html>.

46840 . . . \$249.95



## About Hipparcos



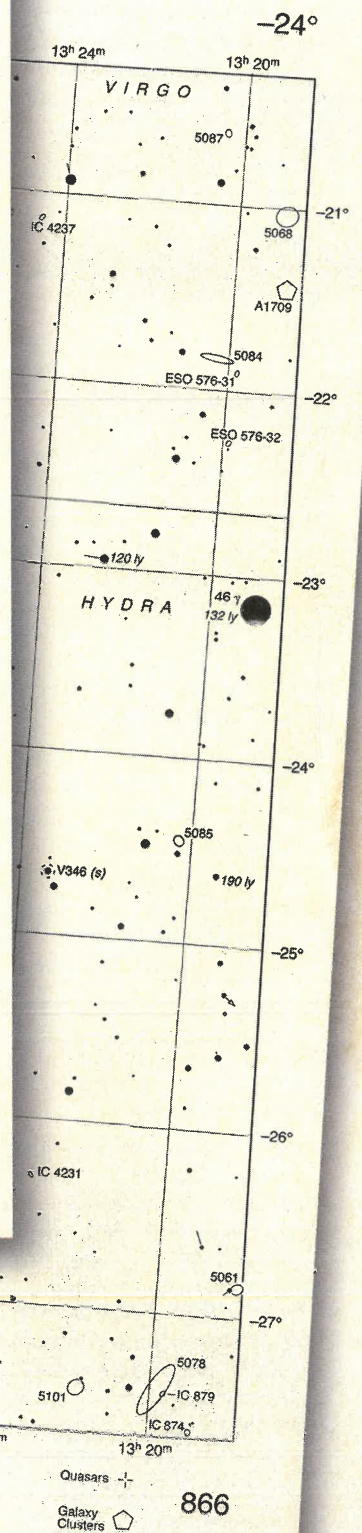
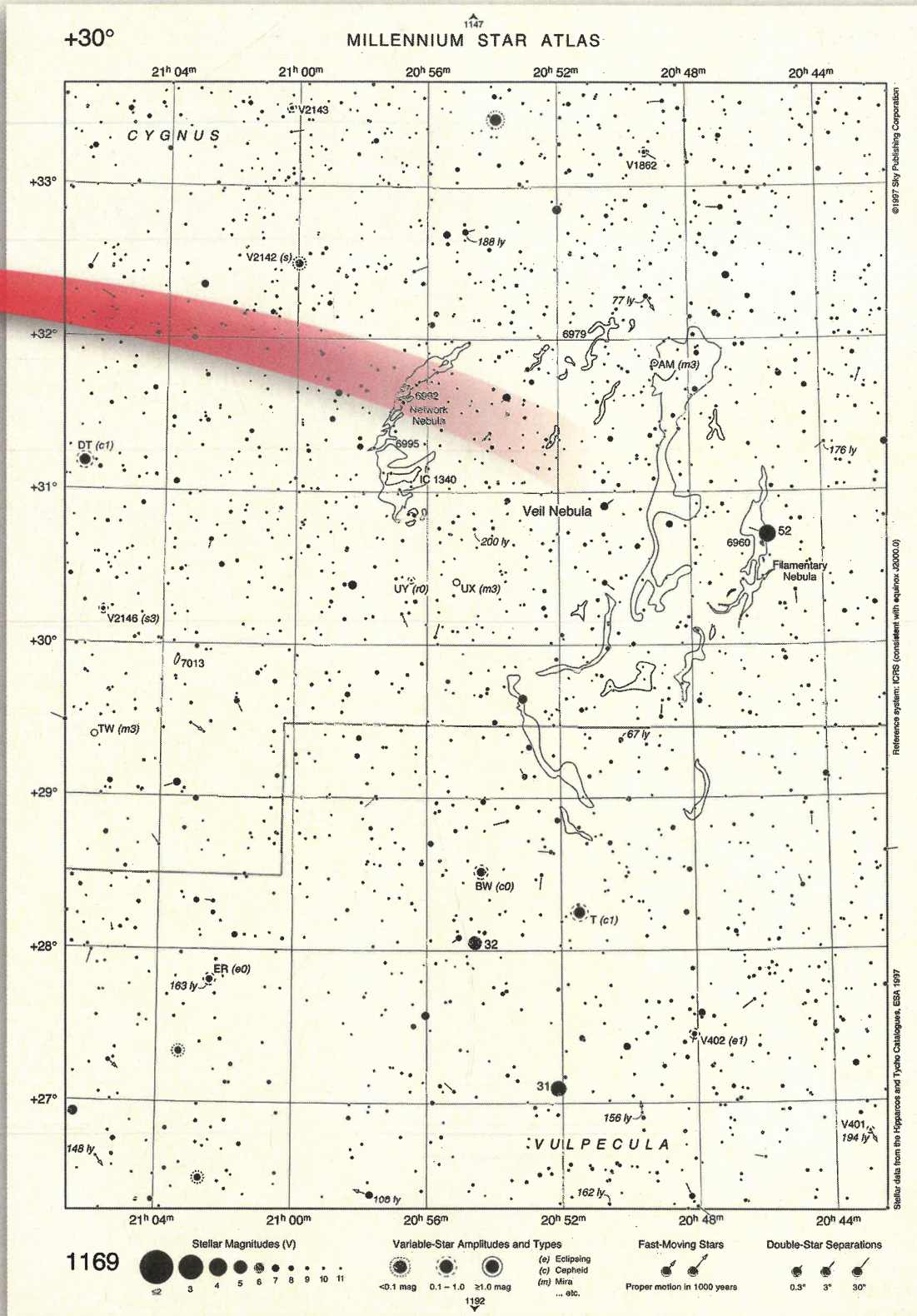
In June 1997 the European Space Agency (ESA) published the long-awaited results of its Hipparcos astrometry mission. Launched in 1989, the Hipparcos satellite spent more than three years measuring stellar positions, brightnesses, and distances with unprecedented accuracy. After several additional years of painstaking data analysis, project astronomers have now begun to share the scientific fruits of this historic mission with the world.

The Hipparcos Catalogue offers milliarcsecond astrometry and millimagnitude photometry for more than 118,000 stars. The Tycho Catalogue provides data for more than a *million* stars with precisions measured in tenths to hundredths of an arcsecond or magnitude. Between them these catalogues reveal thousands of new variables and multiple stars. As the first stellar databases made from space-based observations, Hipparcos and Tycho will remain the definitive astrometric and photometric catalogues for many years to come.



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By Jean Texereau

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By Albert G. Ingalls

When amateur telescope making became popular in the United States earlier this century, most would-be "glass pushers" had to learn what they could through word of mouth. Eventually ATM guru Albert Ingalls collected the wisdom of the movement's founders into "the ATM books," a three-volume work that became an instant classic and served as the bible of telescope makers until it went out of print about a decade ago. Now it's back — and better than ever! The text has been rearranged and augmented with new material, and the tables of contents and indexes have been expanded manyfold for ease of use. Here's what you get in this unparalleled resource:

- ATM 1 (576 pages, 272 illustrations): Mirrors for Newtonian telescopes, optical testing, workshop wisdom, observatory buildings.
- ATM 2 (576 pages, 263 illustrations): Refractors, telescope mechanics, telescope adjustments, binoculars, Schmidt cameras, optical flats.
- ATM 3 (624 pages, 263 illustrations): Optical production methods and machinery, eyepieces and small lenses, optical coatings and coating equipment, the eye and the atmosphere, other optical instruments, equipment for solar observing.

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By Patrick Moore

The history of the telescope parallels revolutions in scientific thought and advances in astronomical discovery. In this unique perspective on our astronomical heritage, Britain's foremost science popularizer traces the development of the telescope from the earliest optical devices through the saga of the Hubble Space Telescope. Based on the 40th anniversary program of *The Sky at Night*, the author's popular TV series. 114 pages, 6 by 9 1/4 inches, softcover.

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## 8 • Star Ware

By Philip S. Harrington

The subtitle says it all: "The Amateur Astronomer's Guide to Choosing, Buying, and Using Telescopes and Accessories." It's a user-friendly discussion of recent developments in equipment for amateurs. Harrington compares many commercial telescopes, noting which are best suited for different purposes. He covers everything — even the best bug sprays and long underwear! 373 pages, 7 1/4 by 10 1/4 inches, softcover.

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9 • Star Testing Astronomical Telescopes **A bestseller!**

By Harold Richard Suiter

The star test is a powerful but very simple way of determining the optical quality of any astronomical telescope, as well as diagnosing specific aberrations. This book uses computer-generated images to show you clearly how various telescope problems reveal themselves in a star test. Then it tells you how to fix many of the most common aberrations. 376 pages, 6 by 9 inches, hardcover.

96441 . . . \$24.95

## 10 • Small Astronomical Observatories

Edited by Patrick Moore

Tired of dragging your telescope in and out of doors? Maybe it's time to build a permanent shelter for it. Here two dozen amateur and professional astronomers share their designs and experiences to help you choose a suitable approach and succeed with a minimum of frustration. Learn how to build a roll-off roof observatory, a roll-away shed, or a rotating dome. Illustrated with dozens of black-and-white photos and diagrams. 229 pages, 6 by 9 1/4 inches, softcover.

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## 11 • Telescopes and Techniques

By Christopher R. Kitchin

Anyone wanting to learn about telescopes, how they work, how to use them, and how to choose a telescope for his or her own use will appreciate this concise introduction to practical astronomy. Three well-illustrated sections cover telescopes and optics, positions and motions in the sky, and observing techniques and detectors. Both novices and experienced amateurs will find this book an invaluable guide to the "nuts and bolts" of amateur astronomy. 204 pages, 6 by 9 1/4 inches, softcover.

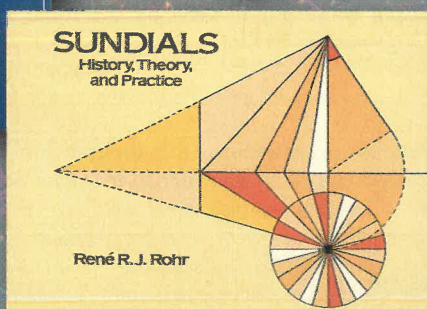
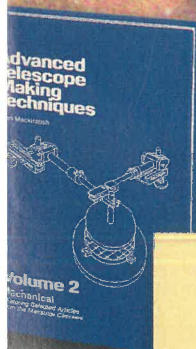
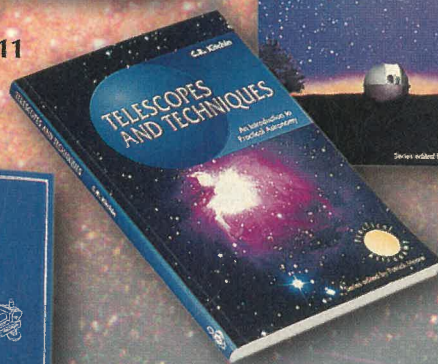
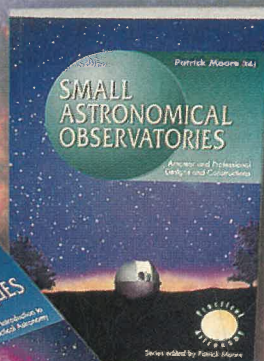
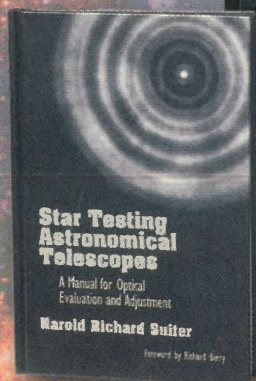
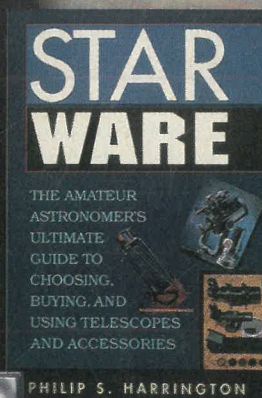
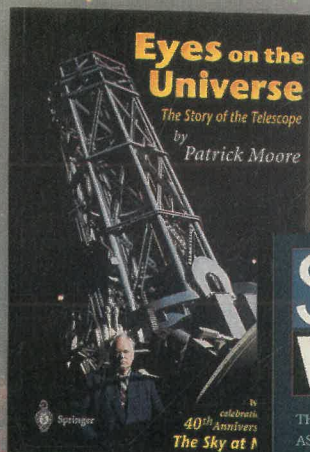
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## 12 • Sundials: History, Theory, and Practice

By René R. J. Rohr

Keep time the natural way with help from this newly reprinted classic by a former ship captain. After reviewing the history of sundials, the author showcases numerous examples of the many different types: classical sundials, inclined dials, solar calendars, analemmatic dials, Moon dials, and others. Profusely illustrated with photos and diagrams, the book also guides you through the design and construction of your own sundials. 142 pages, 11 by 8 inches, softcover.

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This striking objet d'art by Joseph Z. Niesyn transforms an ordinary 16-inch Earth globe into a marvelous astronomical teaching and learning tool. Set inside a smoked-Plexiglas box, the globe recreates the appearance of our home world floating and spinning in space. Just as in nature, the illumination changes with the seasons — you can actually see how different locations on Earth receive different amounts of sunlight throughout the year, or simulate sunrise and sunset from any location! *17½ by 17½ by 23 inches; minimal assembly required.*

Note: This item is custom built and shipped to the customer directly from the artist's studio by United Parcel Service. Please allow 4 weeks for delivery.

**BLUEGLOBE . . . \$595.00**

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Our map of the Moon's near side identifies 300 craters by name, plus dozens of other features. The Moon is shown south up, the way it appears in most astronomical telescopes. (If your scope-eyepiece configuration gives a north-up view, simply turn the map upside down.) *Lunar disk is 10½ inches in diameter. Great for use with binoculars and small telescopes.*

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## 4 • Giant Map of the Moon

A beautiful, shaded-relief composite of the Moon's near side based on observatory photographs, plus an artist's rendition of the lunar far side. Hundreds of prominent features are labeled. On the back you get an illustrated guide to the Earth-Moon system and a brief history of lunar exploration. *5 by 10 inches; unfolds to 54 by 39 inches.*

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## 6 • NASA Moon Globe

With this detailed 12-inch globe you can explore the Moon's many craters, "seas," and mountains, including those out of view on the lunar far side. *Comes with a plastic base and informative booklet.*

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This Mercator projection combines albedo markings with thousands of craters, mountains, and other surface features mapped by Mariner 9, many of which are labeled. *Unfolds to 39 by 40 inches.*

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## 8 • The Sky & Telescope Mars Globe

Celebrate the resumption of our robotic exploration of Mars with our 12-inch scale model of the red planet, which depicts more than 100 identified topographic features as well as the major bright and dark regions visible from Earth. It was produced in cooperation with NASA and the U.S. Geological Survey. *Comes with a clear pedestal and an information booklet.*

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**9 • Mars PlanetScape Poster New!**

Follow along on your Mars poster as the latest round of Mars exploration gets under way! This richly detailed topographic satellite map of the red planet is based on Viking orbiter data. Features such as Valles Marineris and Olympus Mons stand out clearly in this attractive, true-color wall chart. 36 by 24 inches; shipped rolled in a sturdy cardboard tube.

MARScape ... \$13.95

**10 • DeepMap 600 New!**

Your road map to the heavens! DeepMap 600 gives the positions for 600 of the finest celestial sights in the Northern Hemisphere on a giant, full-color star map plotted and drawn by world-renowned star mapper Wil Tirion. Color-coded symbols help you locate galaxies, nebulae, star clusters, and interesting double and variable stars. The accompanying text offers tips on using the map, along with general observing hints. Covers the sky from declination +70° to -60°, with a map of the northern circumpolar region on the back. Keep one copy in your telescope case, and another in your car's glove box! 4¾ by 10½ inches; unfolds to 32 by 18 inches.

DEEPMAP ... \$13.95

**11 • BAA Chart of the Heavens**

By Wil Tirion

The British Astronomical Association's panoramic wall chart shows the entire night sky, divided into north and south polar regions and equatorial zones. Celestial cartographer Wil Tirion has plotted stars down to magnitude 5.5 and used symbols to mark the positions of double and variable stars, clusters, nebulae, and galaxies. 27 by 19 inches; shipped rolled in a sturdy cardboard tube.

S0032 ... \$5.95

**12 • The Sky & Telescope Venus Globe**

Our 12-inch scale model of Venus is based on radar data from the Magellan orbiter, which mapped the planet's surface from 1990 to 1994. It is color coded to represent elevation, and all major landforms are labeled. Produced in cooperation with NASA and the U.S. Geological Survey. **Bonus!** Each globe comes with "Exploring Venus," a 24-page reprint from *Sky & Telescope*. Explore craters, faults, lava plains, and bizarre "pancake" domes — in eye-popping 3-D! Includes two pairs of 3-D glasses.

VENUS ... \$94.95

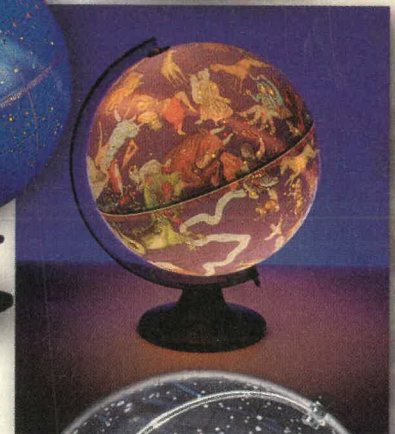
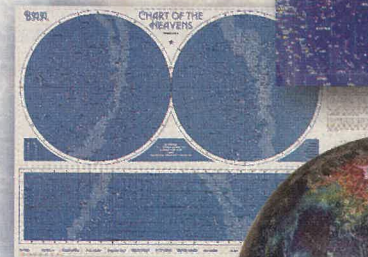
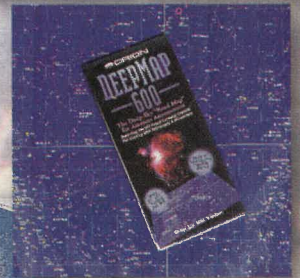
**13 • The Night's Lights New low price!**

This unusual two-way lighted globe is a real conversation-starter! When the internal light is off it's a detailed celestial globe. Click the light on and dozens of mythical constellation figures appear in glorious color! All 88 constellations are displayed on this 12-inch orb, which comes with a plastic base and semimeridian. Cord plugs into a 115-volt AC outlet.

S0061 ... ~~\$104.95~~ \$59.95**14 • Starship Earth: The Great Celestial Sphere**

Visualize many basic astronomical concepts with this gorgeous 16-inch acrylic globe, newly revised and updated for the 21st century. More than 1,100 stars, deep-sky objects, and all 88 constellations are accurately depicted on a grid of right ascension and declination lines. A rotatable Earth globe, a Sun ball, and an adjustable horizon ring allow you to simulate the view of the heavens from anywhere on Earth at any time. New features include improved object positions based on *Sky Atlas 2000.0* and *Sky Catalogue 2000.0* (see pages 8–9) plus a translucent Milky Way. Comes with an attractive desktop stand and an expanded instruction manual by the late George Lovi and frequent *Sky & Telescope* contributor James Mullaney.

STSHP ... \$394.95





## 1 • The Messier Objects Poster **A bestseller!**

We've put photographs of all 109 of Charles Messier's deep-sky delights on this handsome wall poster. Complementing the crisp black-and-white images is brief background information about the objects, as well as three quick-reference tables that classify them by constellation, coordinates, and object type. Turns any wall into a deep-sky showcase! 24 by 36 inches.

S0066 . . . \$9.95

## 2 • Sky & Telescope's Messier Card

Redesigned and updated, this quick-reference data card lists the positions (equinox 2000.0), sizes, and magnitudes of all 109 Messier objects, plus 20 additional deep-sky gems. Perfect for Messier marathoners! *Optional laminated finish protects it indefinitely against moisture and wear.* 12 by 9 inches.

S001L Laminated . . . \$3.95

S0001 Unlaminated . . . \$2.50

Bulk discounts are available.

## 3 • The Messier Album

By John Mallas and Evered Kreimer

For each of Messier's star clusters, nebulae, and galaxies, you'll find modern and classical descriptions of its visual appearance, a photograph, a finder chart, and interesting "astro-facts." Includes an introductory chapter by historian of science Owen Gingerich. 248 pages, 6 by 9 inches, hardcover.

46042 . . . \$21.95

## 4 • Messier Marathon Observer's Guide

By Don Machholz

Log all the Messier objects in a single night! The Messier Marathon — a mad dash from target to target lasting from dusk to dawn — has become an annual rite. It is possible only in late March and early April, when the Sun lies in a part of the zodiac devoid of Messier objects. This handy guidebook from a veteran comet hunter and one of the challenge's originators tells how to plan your search sequence, lists the best dates each year through 2019, and includes detailed finder charts specially designed and ordered for marathoners. 97 pages, 8½ by 11 inches, spiralbound.

46050 . . . \$12.00

## 5 • Beyond Messier: The Caldwell Catalog

By Patrick Moore and M. Barlow Pepin

Beloved English astronomer Patrick Moore introduces his Caldwell list, and M. Barlow Pepin elaborates on it, in this 8-page reprint (revised and updated) from the December 1995 *Sky & Telescope*. It's the definitive guide to 109 deep-sky treasures that Messier overlooked. Take the Caldwell Challenge: see how many of these telescopic targets you can view from your favorite observing site. Order copies for everyone in your astronomy club or classroom! 8½ by 11 inches, 8 pages.

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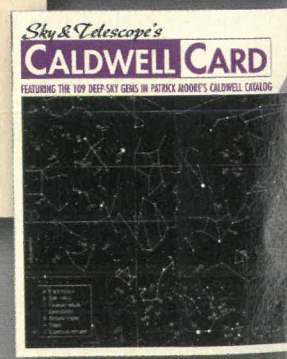
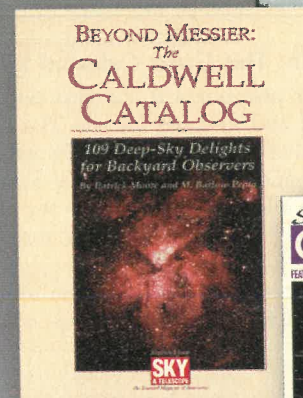
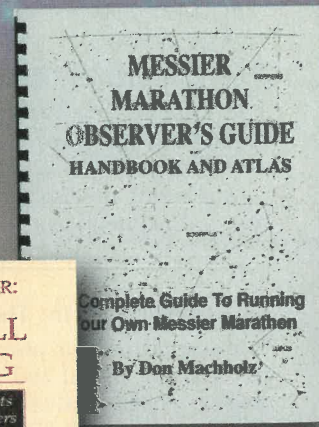
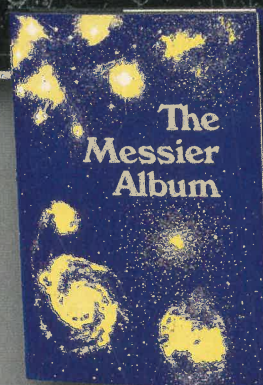
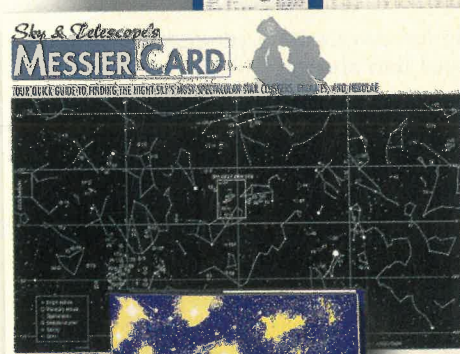
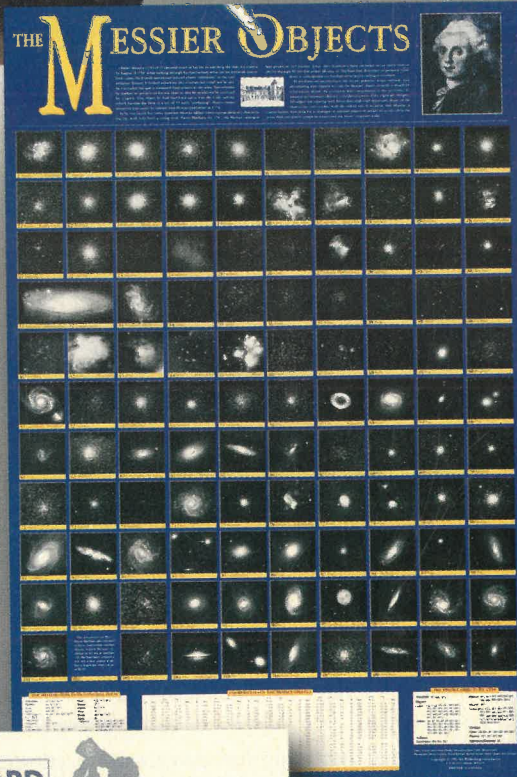
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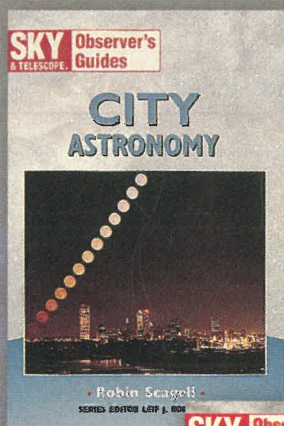


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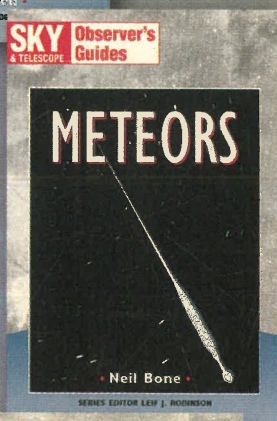


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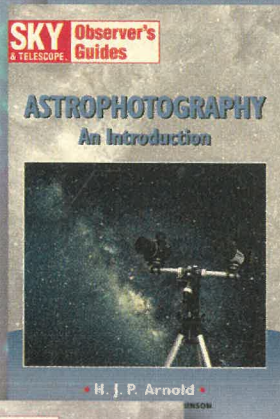
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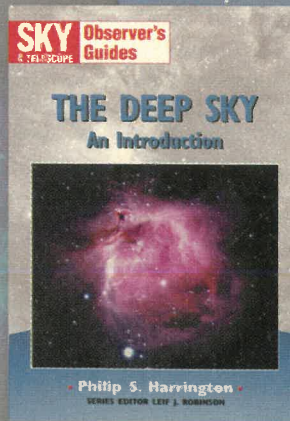
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## 7 • City Astronomy

By Robin Scagell

Amateur astronomers who live in light-polluted cities can enjoy observing without driving hours into the countryside in search of pitch-black night skies. After discussing the impact of urban lighting on recreational astronomy, this book focuses on solutions. Includes:

- spotting the right weather conditions for optimal observing
- basic telescope types and their usefulness in the city
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- naked-eye meteor watching and record-keeping
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- getting the best out of black-and-white and color film
- photographing the Sun, Moon, planets, meteors, comets, stars, and satellites, with or without a telescope
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Here is the perfect reference for anyone who owns a telescope or a pair of binoculars but doesn't know what to look for amid the constellations. Deep-sky aficionado Harrington surveys the best double and multiple stars, variable stars, open and globular clusters, nebulae, and galaxies. Then he explains how to find them and what you'll see when you do. Includes:

- an introduction to the wide variety of observable deep-sky objects
- 36 full-page sky charts showing all the objects discussed in the text
- historical background on the most popular deep-sky catalogs
- suggestions for what equipment to use for different types of observations
- detailed descriptions of more than 300 of the finest deep-sky targets
- "eyepiece impressions" — sketches that show what clusters, nebulae, and galaxies *really* look like through a small telescope
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Have you seen all that the Moon has to offer? This atlas contains 76 exquisitely detailed, fully labeled, pen-and-airbrush maps of the Moon's near side, plus 50 close-up photographs. Each is accompanied by brief descriptions of prominent formations and their historical namesakes. Get to know our nearest neighbor! 224 pages, 8 3/4 by 11 3/4 inches, hardcover.

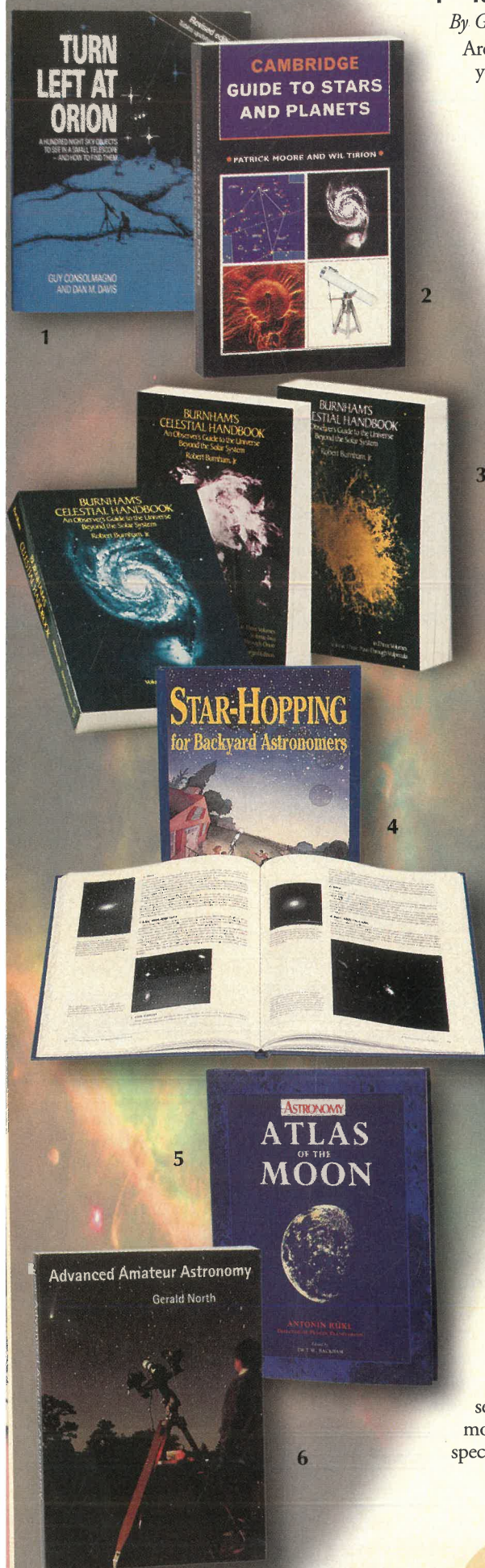
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This book is for backyard astronomers who want to move beyond elementary stargazing to more challenging projects. Author North, himself an accomplished amateur, reviews observing techniques, the fundamentals of practical astronomy, including telescope optics, atmospheric seeing, eyepiece designs, astrophotography, and electronic imaging, photometry, spectroscopy, and radio astronomy. Take your hobby to the next level! 7 by 10 inches, hardcover.

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Plan your eclipse chases into the next century with this complete guide to nature's grandest spectacles. Experienced amateur astronomer and eclipse aficionado Phil Harrington gives solid advice about observing both solar and lunar eclipses, augmented with detailed accounts of what to expect during every such event to occur during the next 20 years. Spiced up with first-person anecdotes from the author and numerous other well-known amateur astronomers, this handy guidebook is sure to give the "eclipse bug" to anyone who hasn't caught it already! 284 pages, 7½ by 9¼ inches, softcover.

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This book catalogs the general characteristics of every lunar eclipse from 1901 through 2100. Illustrations show the path of the Moon through Earth's shadow and the global visibility of each eclipse. Predicted contact times and other details are supplied for every lunar eclipse from now through 2035. Eclipse geometry, frequency, and other topics are also covered. 232 pages, 8½ by 11 inches, softcover.

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This beloved classic, translated and updated by Len Seymour, examines a wide range of "magical" everyday optical effects that can be observed with the naked eye. Minnaert explains atmospheric halos, the green flash of the setting Sun, rainbows, twilight, the colors of shadows, freak reflections, afterimages, contrast effects, black snow, mirages, and much more. Contains 80 new photographs, 52 in full color. 434 pages, 6¼ by 9½ inches, softcover.

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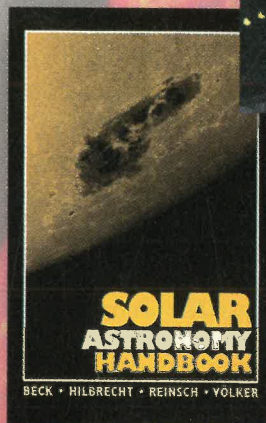
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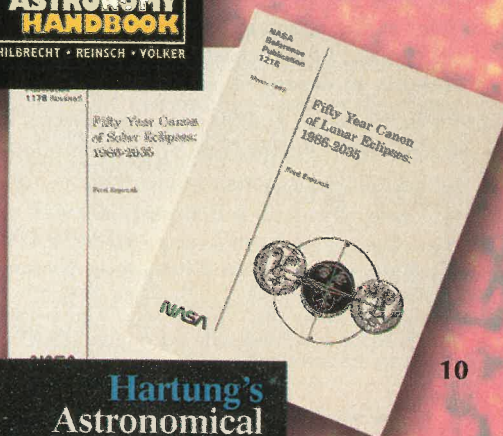
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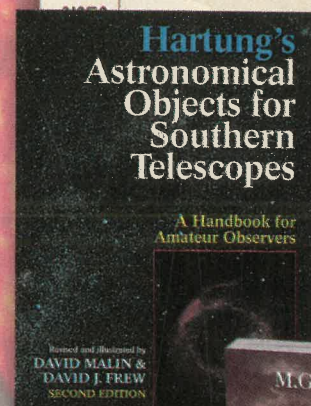


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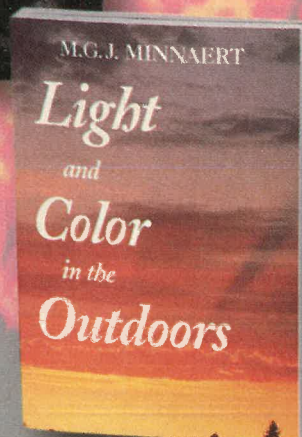


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**Requirements:** PC: 486/66 MHz or Pentium processor, Windows 3.1/3.11 (Windows 95 or NT recommended), 16 MB RAM, SVGA monitor, CD-ROM drive; Mac: LCII (68040/25 MHz) or PowerMac, System 7.0 or higher, 16MB RAM, CD-ROM drive.

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- 250,000 stars; 40,000 deep-sky objects; 5,000 asteroids
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**Requirements:** Windows: IBM compatible, 386SX CPU (486 or Pentium recommended), 8 MB RAM, 256-color SVGA display, Windows 3.1x/95, 2X CD-ROM drive, Windows-compatible sound card, mouse; Mac: Mac LCII or better with System 7.0 or higher (or Power Mac 6100 or better with System 7.1.2 or higher), 8 MB RAM, 2X CD-ROM drive, thousand-color display, QuickTime 2.0 or higher, mouse.

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*TheSky* combines speed and accuracy with an interface that's very easy to use. If your PC runs Windows 95 or NT, you can take full advantage of its enhanced capabilities with this 32-bit version of this best-selling program. And if you're still using Windows 3.1 (or 3.11), the Microsoft Win32s extension (included) lets you use *TheSky* with your familiar Windows environment. Features include:

- the Hubble Guide Star Catalog's 19 million stars and nonstellar objects
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- more than 750 color images of the planets and deep-sky objects
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- enhanced star-chart printing
- animate solar-system objects; view eclipses and occultations
- accurately depict the night sky for any date from 4713 B.C. to A.D. 10,000, from any location on Earth.

*TheSky* works seamlessly with the *RealSky CD* too; overlay *TheSky's* charts on real images of the cosmos! Watch *Sky & Telescope* for news of the forthcoming Mac version!

**Requirements:** IBM-compatible PC with 486DX/33 or better CPU, Windows 95/NT (or Windows 3.1/3.11 with DOS 5.0 or higher), 8 MB RAM, math coprocessor, 35 MB free hard-disk space, CD-ROM drive, VGA or better display, mouse.

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Explore the nature of comets with this interactive multimedia CD-ROM from Cyanogen Productions! From Halley to Hale-Bopp, you'll find a variety of images, animations, and breathtaking time-lapse sequences of the latest and greatest comets. A comet-hunting simulation and video clips of successful comet-seekers talking about their hobby help you learn to be a comet-hunter too. As a bonus, the powerful shareware planetarium software *Earth-Centered Universe* is included on the disc too!

**Requirements:** IBM-compatible PC with 486 or better CPU (Pentium recommended), 8 MB RAM, Windows 3.1/95/NT, CD-ROM drive, 16-bit or 24-bit color video recommended.

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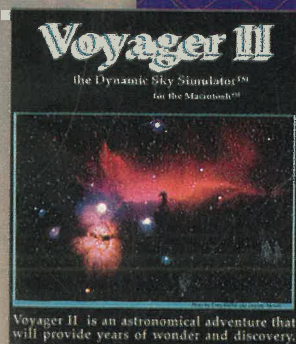
- nearly 20 million stars and deep-sky objects from the Hubble Guide Star Catalog
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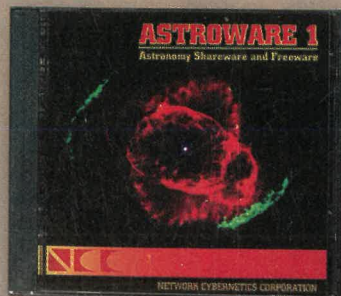
- 259,000 SAO stars; 40,000 double and variable stars; 20,000 deep-sky objects
- Dual sky display, satellite tracking, enhanced printing, and optional telescope control
- thousands of comets and asteroids
- 64 color images of celestial objects; add your own
- Create your own QuickTime movies of celestial events
- CD-ROM contains the 19 million celestial objects in the Hubble Guide Star Catalog and more than 800 astronomical images.

Watch *Sky & Telescope* for news of the forthcoming Windows 95 version!

**Requirements:** Color 68K Macs or Power Macs, including portables. System 7.0 or later. Minimum 2 MB RAM, 5 MB free disk space, 3½" disk or CD-ROM drive. Color display recommended. Accelerated for Power Macintosh.

**S0104 . . . \$119.95**

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#### 7 • Astroware 1 CD-ROM (DOS, Windows, OS/2, Mac, UNIX)

First in a new series of software tools for professional and amateur astronomers, this ISO-9660 disc contains thousands of shareware ("try-before-you-buy") and freeware files for PCs, Macs, and UNIX workstations. Includes source code and text files, as well as programs to plot star charts, process CCD images, plan solar-system and deep-sky observations, design telescope optics — you name it!

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## 8 • The Universe at Your Fingertips

Edited by Andrew Fraknoi

This publication collects dozens of astronomy-related activities and resources into a single giant guide for astronomy educators. Anyone who has ever thought of volunteering to teach some astronomy classes at the local school will do well to base the curriculum on the material contained in this comprehensive teaching and learning aid. It's also a great source of ideas for Astronomy Day activities. 813 pages, 8½ by 11 inches, loose-leaf (fits in a 4-inch three-ring binder, not included).

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This hefty reference work, with more than 400 articles, brings you lucid explanations by world-class scientists. Advanced amateurs, writers, teachers, and college students will find it an indispensable resource, well worth the price. 971 pages, 8½ by 11 inches, hardcover.

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**13 • Views of the Solar System New!***By Calvin J. Hamilton*

Take an exciting voyage of discovery through the solar system using your home computer and this hypertext-formatted CD-ROM. Using your Web browser (no Internet connection required) you can visit planets, moons, rings, comets, and asteroids — all with the click of a mouse. Includes a chronology of planetary exploration, extensive background information, video clips, glossary, bibliography, and special resources for educators.

**Requirements:** Macintosh: 68030 processor or faster; System 7.0 or higher; 4 MB RAM; 8 MB hard-disk space; 8-bit graphics (256 colors, 640-by-480 resolution); CD-ROM drive. Windows: IBM-PC compatible 40-MHz 386DX or better; Windows 3.1 with DOS 6.0 or Windows 95; 4 MB RAM; 8 MB hard-disk space; 256-color display adapter and monitor; CD-ROM drive.

VIEWSS . . . \$21.95

**14 • Astronomical Algorithms***By Jean Meeus*

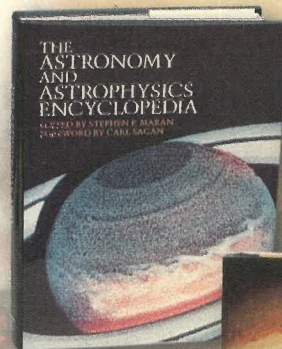
This handbook explains how to do myriad astronomical calculations with a calculator or computer. Fifty-five chapters cover everything from determining the tilt of Saturn's rings for a given date to precessing a star's coordinates for any epoch. Most formulas are presented with a numerical example. 429 pages, 6 by 9 inches, hardcover.

96352 . . . \$24.95

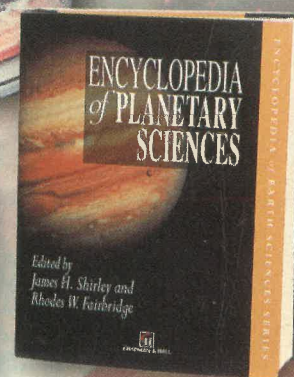
**15 • Mathematical Astronomy Morsels New!***By Jean Meeus*

Interested in the frequency of blue moons? Wonder how often the planets group in the same area of the sky? Chances are you'll find what you're looking for in this masterful volume devoted to the detection of patterns and cycles in sky phenomena. Meeus offers detailed investigations into everything from planetary motions and lunar phases to the variability of sunspots and the dates of Easter. 379 pages, 6¼ by 9¼ inches, hardcover.

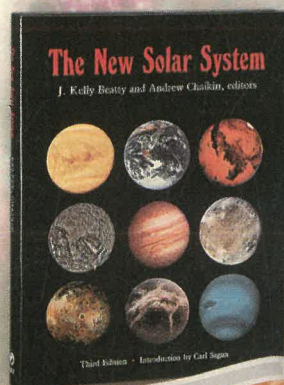
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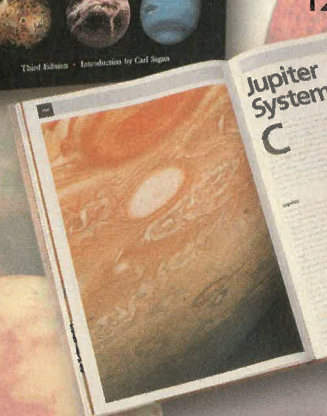
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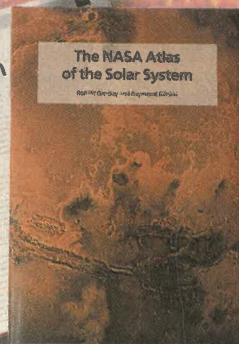
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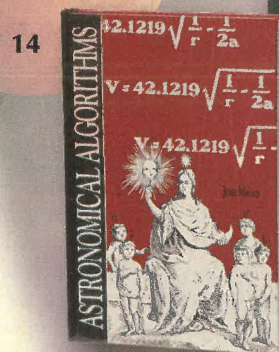
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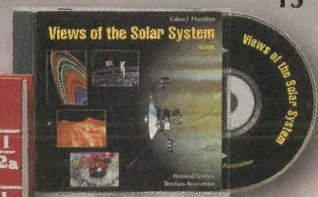
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### 1 • Hubble Vision: Astronomy with the Hubble Space Telescope **A bestseller!**

By Carolyn Collins Petersen and John C. Brandt

The Hubble Space Telescope has revealed spectacular and intriguing details of every celestial object upon which it has gazed. This book comprehensively reviews the most exciting science to come from the observatory during its first five years in orbit. Petersen, a talented science writer, and Brandt, one of the Hubble project's senior scientists, present dramatic images and compelling spectra of planets, comets, stars, nebulae, and galaxies, all supported by detailed and authoritative narrative. *256 pages, 9 1/2 by 11 inches, more than 100 color photographs and 50 black-and-white illustrations, hardcover.*

96438 . . . \$39.95

### 2 • Hubble Library of Electronic Picturebooks (Mac, Windows) **New!**

Exploring the universe just became a whole lot more fun! This CD-ROM from the Space Telescope Science Institute contains 16 electronic picturebooks of space images and artwork. Included are spectacular images and science from the Hubble Space Telescope and early Mars missions, views of Earth from orbit, detailed close-ups of the Moon from the Clementine spacecraft, Magellan's radar scans of Venus, space art by kids, and a lot more! Designed with a simple, elegant user interface, these picturebooks present scientific information in an easy and understandable manner. Great for individual or classroom use.

*System requirements:* Macintosh: 68020 or greater processor, 2.5 MB of available RAM, System 7.1 or greater, and 8-bit (256-shade) color or gray scale display. PC: 386 or better processor, 5 MB RAM, Windows 3.1/3.11/95, 640-by-480-pixel 256-color video, sound support (ability to play WAV files).

EPBOOKS . . . \$39.95

*The following slide sets are great for lectures and presentations! Each comes with a booklet containing authoritative background information and detailed captions.*

### 3 • Hubble Space Telescope Slide Set 5

Here are 20 of Hubble's "best shots" from 1995 and 1996, including the gas pillars of the Eagle Nebula; the Hubble Deep Field; the Orion, Egg, and Hourglass nebulae; images of the outer planets; and more.

AS239 . . . \$26.95

### 4 • Hubble Space Telescope Slide Set 6 **New!**

Thirty more striking images from Hubble's 1996 observations: Martian dust storms, edge-on views of Saturn's rings, a look into the heart of the Lagoon Nebula, galaxy clusters, black holes, gravitational lenses, Hubble's 100,000th exposure, and more.

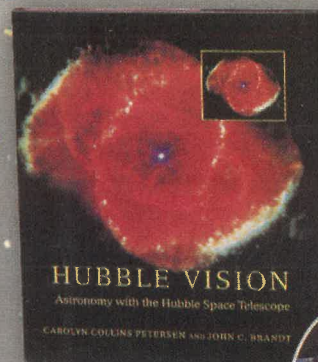
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### 5 • Starbirth in Serpens Poster **A bestseller!**

When Hubble captured a detailed close-up of starbirth in M16, the Eagle Nebula in Serpens, it also captured the imagination of millions of people around the world. The eerily three-dimensional image shows towering columns of cold, dusty gas spawning newborn stars, some of which are just emerging from their placental clouds. Now you can have your own copy of this glorious picture and hang it on your wall to share with family and friends. Our beautiful color poster is printed on high-quality paper and features not only the Hubble close-up but also a glorious wide-field photo of the Eagle Nebula, made by renowned astrophotographer David Malin with the Anglo-Australian Telescope. *36 by 24 inches.*

SM16P . . . \$9.95

*See our Hubble Deep Field poster on the back cover too!*



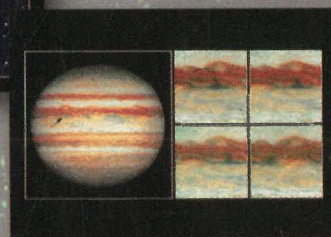
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Dress up your observatory, den, or office with this stunning full-color poster showcasing 20 of the universe's best-known deep-sky wonders. The images were made by some of the world's most talented astrophotographers, and each one is accompanied by a short, descriptive caption. 24 by 36 inches.

X0195 . . . \$9.95

**2 • A View of the Universe**

By David Malin

*"Just buy a copy — everyone should have one." — Sky & Space*

This lavish pictorial journey through deep space showcases the breathtaking images of renowned astronomical photographer David Malin. Using some of the world's largest telescopes and innovative photo-processing techniques, Malin has captured galaxies, nebulae, and star clusters in their natural colors. The photographs — more than 100 in all — are accompanied by engaging and informative captions. 288 pages, 9<sup>3</sup>/<sub>4</sub> by 11 inches, hardcover.

46662 . . . \$39.95

**3 • Aurora Poster***"One of the most beautiful posters this editor has ever seen."**— Association of Astronomy Educators Journal*

The aurora, one of nature's most awesome sights, is displayed in photographs showing its many forms and colors. A diagram illustrates how and why auroras occur, and a *Sky & Telescope* reprint explains the science behind them. 34 by 24 inches.

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In addition to our popular collection of images from the Hubble Space Telescope (see page 27) Sky Publishing continues to produce other 16-by-20-inch Spotlight Prints of outstanding celestial photographs. All are reproduced on high-quality Kodak paper and come with a description and instructions for care. Additional subjects are also available: for a complete list, see SKY Online at <http://www.skypub.com/catalog/images.html>.

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*In cooperation with the Lunar and Planetary Institute (LPI) in Houston, Texas, Sky Publishing is pleased to introduce four slide sets featuring some of the best color and black-and-white images of our solar system. Each comes with a booklet of captions penned by planetary scientists, along with suggestions for further reading.*

**7 • A Spacecraft Tour of the Solar System** **New!**

Piloted and robotic exploration of our planetary system has revolutionized our knowledge of the Sun and its family of planets and smaller bodies. The images in this slide set, most of them from NASA space probes, illustrate the principal distinctive features of all nine planets and their largest natural satellites, along with the Sun itself, the main-belt asteroid Gaspard, and the nucleus of Halley's Comet. 40 slides, 28-page caption booklet; compiled by James R. Zimbelman (National Air and Space Museum).

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**8 • The Red Planet: A Survey of Mars** **New!**

Many different types of geologic features on Mars are illustrated, including tectonic structures, volcanoes, impact craters, landslides, and features formed or modified by ice and water. Also included are images of the red planet's two small moons, Phobos and Deimos, and of Martian meteorites. 40 slides, 28-page caption booklet; compiled by Walter S. Kiefer, Allan H. Treiman, and Stephen M. Clifford (LPI).

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**9 • Clementine Explores the Moon** **New!**

The 1994 Clementine mission tested a new type of "smaller, faster, better" spacecraft and returned a vast suite of scientific data from the Moon. Clementine produced a high-resolution global map of Earth's companion world, enabling planetary scientists to study the Moon's geology at an unprecedented level of detail. *36 slides, 20-page caption booklet; compiled by Paul D. Spudis (LPI).*

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**10 • Ancient Life on Mars???** **New!**

In August 1996 scientists announced that they had found evidence of past microscopic life on Mars. This evidence included bacteria-shaped "fossils" and organic molecules in the Antarctic meteorite ALH 84001, which is believed to have been blasted from the Martian surface millions of years ago. This slide set looks at Mars as a possible abode for life, meteorite collecting in Antarctica, ALH 84001 and its possible traces of Martian life, and NASA's current program of Mars exploration. *40 slides, 40-page caption booklet; compiled by Pat Dasch (National Space Society) and Allan Treiman (LPI).*

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**11 • The Ultimate CCD Collection** (Windows, Mac)

By Jack Newton and Don Parker

When you come across a "knock-your-socks-off" CCD image in *Sky & Telescope*, you often find Jack Newton's or Don Parker's name in the caption. Newton records deep-sky objects in glorious color using his 25-inch telescope in British Columbia, while Parker uses a 16-inch reflector to capture high-resolution views of solar-system objects from his Florida backyard. Now they have compiled more than 300 of their finest color CCD images of the Moon, planets, nebulae, and galaxies on one CD-ROM. All are supplied in 24-bit TIFF or JPEG format for maximum resolution and color definition, as well as in 8-bit bit-mapped format for quick looks. You also get time-lapse movies of Jupiter's rotation and Comet Hyakutake's motion against the starry background. *Includes an image viewer for Windows; PowerMac users will need separate image-viewing or image-processing software (not included).*

**Requirements:** Windows: IBM-compatible PC running Windows 3.1x/95/NT, 386 or better processor, 4 MB RAM, 2.5 MB of free hard-disk space, CD-ROM drive. Mac: Any color Power Macintosh equipped with software to display TIFF, JPEG, or bit-mapped images; CD-ROM drive.

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**12 • Glorious Eclipses Slide Set**

"Absolutely stunning!" — *Astronomy Now*

Experience the grandeur of the 1991 total solar eclipse and other eclipses from the past 25 years. Nineteen full-color slides, chosen from the best images submitted to *Sky & Telescope*, offer dramatic views of the Sun's corona, fiery prominences, and the diamond-ring effect. The set also includes images of annular and lunar eclipses, and unique "sequence" shots. *Comes with an 8-page booklet of captions.*

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**13 • Solar Eclipse Poster**

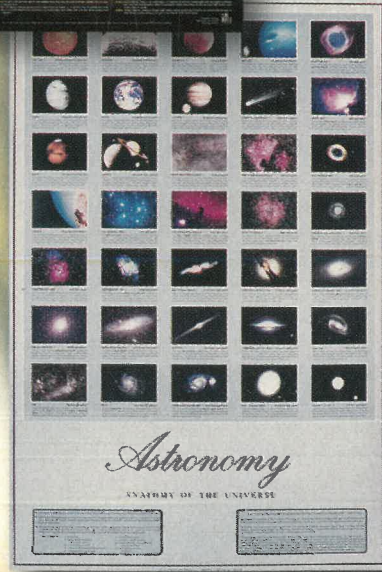
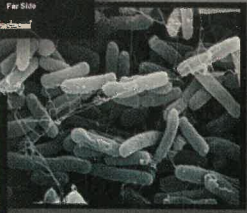
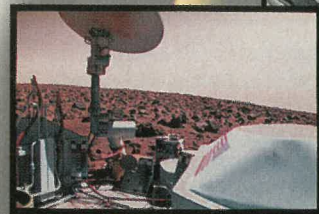
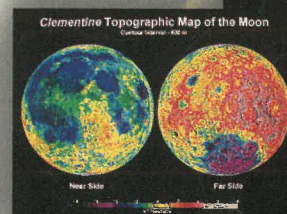
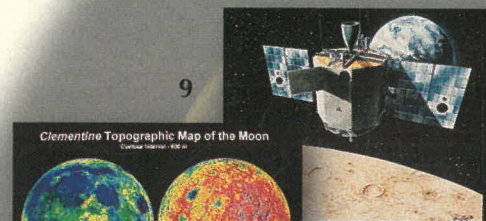
This wall ornament combines the splendor and science of nature's grandest spectacle. Exquisite color photographs capture the beauty of both total and annular ("ring of fire") eclipses, while diagrams and captions detail the anatomy of these dramatic events. Includes a map of every solar eclipse from now through the year 2008. *24 by 36 inches.*

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**14 • Astronomy: Anatomy of the Universe Poster** **A bestseller!**

Thirty-five color photographs depict many of the different types of objects known to exist in the universe. Includes the planets, nebulae, star clusters, galaxies, a quasar, a total lunar eclipse, and a comet. *24 by 36 inches.*

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## 1 • Astrophotography II

By Patrick Martinez

Sky shooters can quickly hone their photographic skills by following the advice and techniques in this book. Full of diagrams and photographs, it covers everything from piggyback to eyepiece-projection photography, and from focusing to reciprocity failure. 174 pages, 9 by 6 inches, hardcover.

96131 . . . \$18.95

See page 19 for *Astrophotography: An Introduction* by H. J. P. Arnold.

## 2 • Choosing and Using a CCD Camera

By Richard Berry

This book puts all the fundamentals of charge-coupled devices into easy-to-understand terms. It covers chip basics, the six types of CCD images, preparing your telescope for CCD imaging, and how to take and calibrate an image set. Comes with software and sample images for use on an IBM PC-compatible computer. So there's no need to own a CCD camera to become familiar with what it takes to produce spectacular images! 96 pages, 8½ by 11 inches, softcover.

9639T with 3½" DOS disk . . . \$29.95

## 3 • Introduction to Astronomical Image Processing

By Richard Berry

Berry uses down-to-Earth language to describe how to unlock the information contained in astronomical images. Includes AstroIP image-processing software and 19 sample images on two disks. 96 pages, 8½ by 11 inches, softcover.

9632T with 3½" DOS disks . . . \$29.95

Another great reference for the newcomers to electronic imaging is *The Art and Science of CCD Astronomy*, edited by David Ratledge, on the back cover. And for more advanced CCD users and do-it-yourselfers . . .

## 4 • The CCD Camera Cookbook

By Richard Berry, Veikko Kanto, and John Munger

This book provides step-by-step instructions and DOS software for building and testing two 12-bit CCD cameras, at a fraction of the cost of commercial units. The Model 211 camera is adequate for imaging the Moon and planets, searching galaxies for supernovae, and doing stellar photometry. Model 245 is a great deep-sky camera. 176 pages, 8 by 11 inches, softcover.

9641T with 3½" DOS disk . . . \$29.95

## 5 • A Practical Guide to CCD Astronomy **New!**

By Patrick Martinez and Alain Klotz

High-performance CCD cameras have opened an exciting window to the stars for thousands of amateur astronomers. Whether you own a CCD now or are contemplating buying one, this book offers tips on buying one, setting it up and using it. Packed with practical tips for the novice and experienced CCD user alike. 240 pages, 6 by 9 inches, softcover.

99504 . . . \$29.95

## 6 • MIRA AL (Windows 95/NT) **New version!**

This is professional-level image-processing and analysis software for the amateur CCD user. It's terrific for squeezing the last bit of detail out of your images, but where it really shows off is in enabling you to extract valuable astrometry and photometry from your data. Its custom, menu-driven, graphical user interface is remarkably easy to learn. The hefty *MIRA User's Guide* is packed with useful tips describing professional techniques for getting the most out of your images. This is version 5.0, the newest entry in the popular family of *MIRA* programs. Find out why *MIRA* is used by more professional astro imagers than all other commercial astronomical image-processing programs combined.

Requirements: IBM PC or compatible computer running Windows 95 or Windows NT 4.0; minimum 16 MB of RAM.

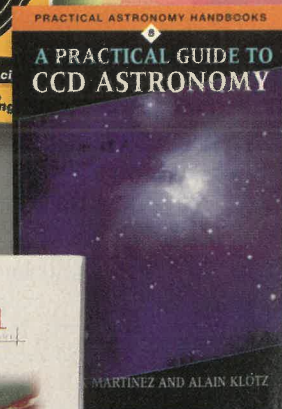
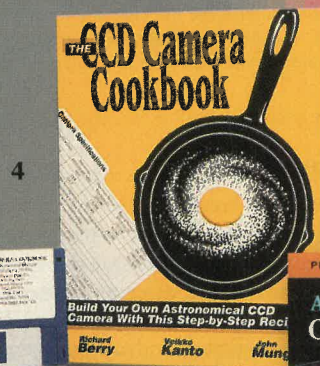
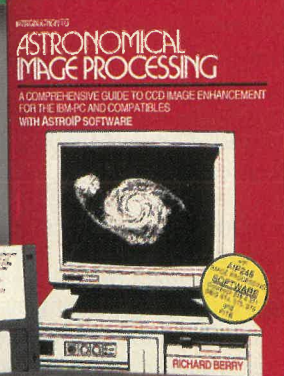
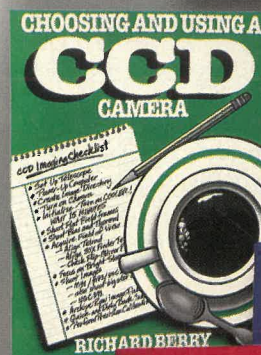
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## ASTROPHOTOGRAPHY II

Featuring the Techniques of the European Amateur

Patrick Martinez

Foreword by  
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